

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A computer implemented method of accessing a storage resource for one of a plurality of network-based applications in a multiple server storage system, the method comprising:

providing, to a lookup partitioning service server, a resource identifier associated with a storage resource;

receiving a looked-up storage server location where said storage resource is located from said lookup partitioning service server that is based on said resource identifier; and

accessing the storage resource at said looked-up storage server location.

2. The method of Claim 1, further comprising providing an application identifier in addition to said resource identifier, wherein said storage resource is associated with both said resource identifier and said application identifier to locate said looked-up storage server location of a partition on a storage server.

3. The method of Claim 1, wherein said looked-up storage server location is a storage partition on one of a plurality of storage servers.

4. The method of Claim 3, including a plurality of storage partitions, said plurality including a primary storage partition and a redundant storage partition, each containing said storage resource.

5. The method of Claim 4, wherein said primary storage partition and said redundant storage partition are each located on separate storage servers of said plurality of storage servers.

6. The method of Claim 5, wherein, if the primary storage partition is unavailable, the looked-up storage server location is the redundant storage partition.

7. The method of Claim 1, further comprising determining which lookup partitioning service server of a plurality of lookup partitioning service servers, will provide said looked-up storage server location in response to said resource identifier.

8. The method of Claim 7, wherein determining which lookup partitioning service server will provide said looked-up storage server location comprises processing said resource identifier through a hash function to provide a hashed resource identifier associated with a particular lookup partitioning service server.

9. The method of Claim 8, wherein each lookup partitioning service server is associated with a predetermined set of hashed resource identifiers.

10. computer readable medium containing computer-executable instructions for performing the method of accessing a storage resource for one of a plurality of network-based applications in a multiple server storage system, the computer-executable instructions comprising instructions for:

sending, to a lookup partitioning service server, a resource identifier mapped to a storage resource;

receiving a looked-up storage partition location where said storage resource is located from said lookup partitioning service server that is based on said resource identifier; and

accessing the storage resource at said looked-up storage partition location.

11. The method of Claim 10, further comprising sending an application identifier in addition to said resource identifier, wherein said storage resource is mapped to both said

resource identifier and said application identifier to locate said looked-up storage partition location on a storage server.

12. The method of Claim 10, further comprising locating which lookup partitioning service server of a plurality of lookup partitioning service servers, will provide said looked-up storage partition location in response to said resource identifier.

13. The method of Claim 12, wherein locating which lookup partitioning service server will provide said looked-up storage partition location comprises hashing said resource identifier to provide a hashed resource identifier mapped to a particular lookup partitioning service server.

14. A computer implemented method of managing access to a storage resource for one of a plurality of network-based applications in a multiple server storage system, the method comprising:

obtaining a resource identifier associated with the storage resource from a front end server;

utilizing said resource identifier to locate in a lookup store of a lookup partitioning service server, a partition of a storage server, where said storage resource is located; and

granting access to the storage resource by providing said location of said partition of said storage server to said front end server.

15. The method of Claim 14, wherein said location of said partition of said storage server is on one of a plurality of storage servers .

16. The method of Claim 14, including a plurality of storage partitions, said plurality including a primary storage partition and a redundant storage partition each containing said storage resource.

17. The method of Claim 16, wherein said primary storage partition and said redundant storage partition are each located on separate storage servers of said plurality of storage.

18. The method of Claim 17, wherein, if the primary storage partition is unavailable, the storage server location is the redundant storage partition.

19. The method of Claim 14, further comprising determining which lookup partitioning service server of a plurality of lookup partitioning service servers, will provide said looked-up storage server location in response to said resource identifier.

20. The method of Claim 19, wherein determining which lookup partitioning service server will provide said looked-up storage server location comprises processing said resource identifier through a hash function to provide a hashed resource identifier associated with a particular lookup partitioning service server.

21. The method of Claim 20, wherein each lookup partitioning service server is associated with a predetermined set of hashed resource identifiers.

22. The method of Claim 14, further comprising moving the storage resource from one storage partition to a new storage partition and updating said resource lookup store with said new storage partition.

23. The method of Claim 14, wherein granting access to the storage resource comprises:

determining that no storage resource exists;

creating a new storage resource in a storage partition;

associating said resource identifier with said storage partition in said resource lookup store; and  
providing said location of said storage partition to said front end server.

24. The method of Claim 14, further comprising calculating a load balancing factor for each storage partition of a plurality of storage partitions and using said load balancing factors to determine the storage partition in which said new storage resource should be created.

25. The method of Claim 24, wherein said load balancing factor is based on value selected from the values consisting of: a mapping number, a count of mapping accesses, and a manual weighting value.

26. The method of Claim 24 further comprising adjusting a manual weighting value to increase the usage of said one of said storage servers.

27. The method of Claim 24, further comprising adjusting a manual weighting value to decrease the usage of said one of said storage servers.

28. A computer readable medium containing computer-executable instructions for performing the method of managing access to a storage resource for one of a plurality of network-based applications in a multiple server storage system, the computer-executable instructions comprising instructions for:

receiving a resource identifier associated with the storage resource from a front end server;

locating a storage partition where said storage resource is located, utilizing said resource identifier in a lookup store of a lookup partitioning service server; and

sending said location of said partition of said storage server to said front end server to grant access to said storage resource.

29. The method of Claim 28, further comprising determining which lookup partitioning service server of a plurality of lookup partitioning service servers, will locate said storage partition in response to said resource identifier.

30. The method of Claim 28, further comprising relocating the storage resource from one storage partition to a new storage partition and updating the mapping of said resource identifier at said lookup partitioning service server.

31. The method of Claim 28, wherein granting access to the storage resource comprises:

failing to locate a mapping to a storage resource;

creating a new storage resource in a storage partition;

mapping said resource identifier to said storage partition in said resource lookup store; and

sending said location of said storage partition to said front end server.

32. The method of Claim 28, further comprising calculating a load balancing factor for each storage partition of a plurality of storage partitions and using said load balancing factors to determine the storage partition in which said new storage resource should be created.

33. The method of Claim 32, wherein said load balancing factor is based on value selected from the values consisting of: a mapping number, a count of mapping accesses, and a manual weighting value.

34. A managed resource computer system for allowing one of a plurality of network-based applications in the managed resource computer system to manage storage resources, the managed resource computer system comprising:

a lookup partitioning services ("LPS") server operative to:

- (i) receiving RIDs;
- (ii) in response to the receipt of an RID, identifying a storage partition associated with the RID; and
- (iii) providing the location of the storage partition associated with the RID to a server so that a client device can access said storage partition.

35. The managed resource computer system of Claim 34, further comprising:

a front end server communicatively coupled to said LPS server for receiving requests for access to storage resources from client devices, said requests for access including an RID.

36. The managed resource computer system of Claim 35, further comprising:

a storage server, communicatively coupled to said front end server, including a plurality of storage partitions for storing storage resources, each storage resource associated with an RID.

37. The managed resource computer system claimed in claim 36, including a plurality of storage servers, each of said plurality of storage servers including a plurality of partitions.

38. The managed resource computer system claimed in claim 37, wherein each storage resource is stored in a primary partition on one of said plurality of storage servers and in a redundant partition on another of said plurality of storage servers.

39. The managed resource computer system claimed in claim 36 wherein said LPS server includes a lookup store for storing location information that associates storage partition locations with RIDs.

40. The managed resource computer system claimed in claim 39 including a plurality of LPS servers, said lookup store being stored on at least two of said LPS servers, one of said at least two LPS servers functioning as a primary LPS server for the lookup store and the other functioning as a redundant LPS server for the lookup store.

41. The managed resource computer system claimed in claim 40 including a plurality of storage servers, each of said plurality of storage servers including a plurality of partitions.

42. The managed resource computer system claimed in claim 41 wherein each storage resource is stored in a primary partition on one of said plurality of storage servers and in a redundant partition on another of said plurality of storage servers.

43. The managed resource computer system claimed in claim 40 wherein:  
said front end server includes a hash table; and  
said RIDs received by said front end server are processed through said hash table to identify which of said plurality of LPS servers functions as said primary LPS server.

44. The method of Claim 14, further comprising calculating a load balancing factor for each storage server of a plurality of storage servers and using said load balancing factors to determine the storage partition in which said new storage resource should be created.



45. The method of Claim 44 further comprising adjusting a manual weighting value to increase the usage of said one of said storage servers.

46. The method of Claim 44, further comprising adjusting a manual weighting value to decrease the usage of said one of said storage servers.

47. A computer implemented method of managing access to a storage resource in a multiple server storage system, the method comprising:

- obtaining a resource identifier to be associated with the storage resource from a front end server;

- utilizing said resource identifier to determine in a lookup store of a lookup partitioning service server that no storage resource exists;

- calculating a load balancing factor for each storage server of a plurality of storage partitions;

- determining, using said load balancing factors, the storage partition in which said new storage resource should be created;

- creating a new storage resource in said storage partition;

- associating said resource identifier with said storage partition in said resource lookup store;

- providing said location of said storage partition to said front end server; and

- granting access to the storage resource by providing said location of said partition of said storage server to said front end server.

48. A computer readable medium containing computer-executable instructions for performing the method of Claim 47.

49. A computing system comprising a plurality of servers, each including a processor and a memory storing computer-executable instructions for performing the method of Claim 47.